Amendments to the Claims

1. (currently amended) A method for communicating with a plurality of radio frequency identification (RFID) tags, comprising:

(a) receiving ~~a series of bits~~ at least one symbol from the plurality of RFID tags for a first node in a binary tree having a plurality of nodes ~~and storing said series of bits in corresponding nodes in a binary tree~~, wherein each node in said binary tree is associated with a counter;

(b) incrementing [[a]] the counter associated with [[a]] the first node in said binary tree when [[a bit]] the at least one symbol received from said plurality of RFID tags matches a logical value associated with the counter ~~a bit stored in said node~~;

(c) decrementing [[a]] the counter associated with [[a]] the first node in said binary tree when [[a bit]] the at least one symbol received from said plurality of RFID tags does not match the logical value associated with the counter ~~a bit stored in said node~~; and

(d) ~~assigning a value to a bit received from said plurality of RFID tags~~ selecting a second node in said binary tree based on a value of [[a]] the counter associated with [[a]] the first node in said binary tree.

2. (original) A method in a radio frequency identification (RFID) reader for interrogating a population of tags using binary tree traversal protocol, comprising the steps of:

(a) entering a logical node in a binary tree;

(b) transmitting a symbol to the population of tags;

(c) determining if at least one symbol is received from the population of tags;

(d) if it is determined in step (c) that at least one symbol has been received, determining whether one symbol received from the population of tags corresponds to a first logical value;

(e) if it is determined in step (d) that one symbol received corresponds to a first logical value, incrementing a node counter value associated with the first logical value;

(f) if it is determined in step (d) that one symbol received does not correspond to a first logical value, decrementing the node counter value associated with the first logical value;

(g) if it is determined in step (c) that at least one symbol has been received, determining whether one symbol received from the population of tags corresponds to a second logical value;

(h) if it is determined in step (g) that one symbol received corresponds to a second logical value, incrementing a node counter value associated with the second logical value;

(i) if it is determined in step (g) that one symbol received does not correspond to a first logical value, decrementing the node counter value associated with the second logical value;

(j) selecting which logical value to store as a bit of a tag bit pattern;

(k) storing the selected logical value as the bit of the tag bit pattern;

(l) determining whether the bit pattern is complete; and

(m) if the bit pattern is not complete; proceeding to step (a).

3. (original) The method of claim 2 wherein step (j) includes the steps of:

determining whether one symbol received from the population of tags corresponds to a first logical value and a second symbol received from the population of tags corresponds to a second logical value;

determining whether either symbol was likely caused by noise; and

if it is determined it is likely that one received symbol was caused by noise, selecting the logical value associated with the other received symbol as the bit of the tag bit pattern.

4. (original) The method of claim 3 wherein the step of determining the likelihood that either received symbol was caused by noise comprises:

evaluating the counter value associated with the first logical value and the counter value associated with the second logical value.

5. (original) The method of claim 4 further comprising the step of:

if it is determined in step (c) that at least one symbol has been received from the population of tags, incrementing a node activity register value.

6. (original) The method of claim 5 wherein the step of determining the likelihood that either received symbol was caused by noise further comprises:

retrieving the activity register; and

evaluating the value of the activity register.

7. (original) The method of claim 2 wherein step (j) includes the steps of:

determining whether one symbol received from the population of tags corresponds to a first logical value and a second symbol received from the population of tags corresponds to a second logical value;

determining whether either received symbol was likely generated by a weak tag; and

if it is likely that one received symbol was generated by a weak tag, selecting the logical value associated with the one received symbol as the bit of the tag bit pattern.

8. (original) The method of claim 7 wherein the step of determining the likelihood that either received symbol was caused by noise comprises:

evaluating the counter value associated with the first logical value and the counter value associated with the second logical value.

9. (original) The method of claim 8 further comprising the step of:

if it is determined in step (c) that at least one symbol has been received from the population of tags, incrementing a node activity register value.

10. (original) The method of claim 9 wherein the step of determining the likelihood that either received symbol was caused by noise further comprises:

retrieving an activity register; and

evaluating the value of the activity register.

11. (original) The method of claim 2 wherein the tag bit pattern contains a tag identification number.

12. (original) The method of claim 11 further comprising:

if it is determined in step (l) that the tag bit pattern is complete, determining whether the stored bit pattern contains a valid tag identification number.

13. (original) The method of claim 12 wherein each bit in the tag bit pattern corresponds to a logical node in the binary tree.

14. (original) The method of claim 13 further comprising:

if the bit pattern does not contain a valid tag identification number, decrementing the node counters for the logical nodes corresponding to each bit in the tag bit pattern.

15. (original) The method of claim 2 further comprising:

if it is determined in step (c) that at least one symbol has not been received, decrementing the node counter corresponding to the last stored bit in the bit pattern.

16. (original) The method of claim 2 wherein the first logical value is a data "0" and the second logical value is a data "1."

17. (currently amended) A method in a radio frequency identification (RFID) reader for interrogating a population of tags using binary tree traversal protocol, comprising the steps of:

(a) entering a logical node in a binary tree;

(b) transmitting a symbol to the population of tags;

(c) determining if at least one symbol is received from the population of tags;

(d) if it is determined in step (c) that at least one symbol has been received, adjusting traversal count information stored for the logical node based on the received at least one symbol;

(e) selecting which logical value to store as a bit of a tag bit pattern;

(f) storing the selected logical value as the bit of the tag bit pattern;

(g) determining whether the bit pattern is complete; and

(h) if the bit pattern is not complete; proceeding to step (a).

18. (original) ~~The method of claim 17 wherein step (d) comprises the steps of~~ A method in a radio frequency identification (RFID) reader for interrogating a population of tags using binary tree traversal protocol, comprising the steps of:

(a) entering a logical node in a binary tree;

(b) transmitting a symbol to the population of tags;

(c) determining if at least one symbol is received from the population of tags;

(d) if it is determined in step (c) that at least one symbol has been received, adjusting information stored for the logical node , wherein step (d) comprises;

(i) if it is determined in step (c) that at least one symbol has been received, determining whether the at least one symbol received from the population of tags corresponds to a first logical value;

(ii) if it is determined in step (d)(i) that the at least one symbol received corresponds to [[a]] the first logical value, incrementing a node counter value associated with the first logical value;

(iii) if it is determined in step (d)(i) that the at least one symbol received does not correspond to [[a]] the first logical value, decrementing the node counter value associated with the first logical value;

(iv) if it is determined in step (c) that at least one symbol has been received, determining whether the at least one symbol received from the population of tags corresponds to a second logical value;

(v) if it is determined in step (d)(iv) that the at least one symbol received corresponds to [[a]] the second logical value, incrementing a node counter value associated with the second logical value; and

(vi) if it is determined in step (d)(v) that the at least one symbol received does not correspond to [[a]] the ~~first~~ second logical value, decrementing the node counter value associated with the second logical value

(e) selecting which logical value to store as a bit of a tag bit pattern;

(f) storing the selected logical value as the bit of the tag bit pattern;

(g) determining whether the bit pattern is complete; and

(h) if the bit pattern is not complete; proceeding to step (a) .

19. (original) The method of claim 18 wherein step (d) further comprises the step of:

if it is determined in step (c) that at least one symbol has been received from the population of tags, incrementing a node activity register value.

20. (original) A method in a radio frequency identification (RFID) reader for interrogating a population of tags using a binary tree traversal protocol, comprising the steps of:

reading a tag identification bit pattern as a result of a binary tree traversal interrogation of a tag in the population of tags;

receiving an error detection code from the tag;

identifying one or more bit positions in the read tag identification bit pattern potentially corrupted by noise;

identifying potential bit patterns having alternate bit values in one or more of the identified bit positions;

calculating an error detection code value for the accumulated tag identification bit pattern;

calculating an error detection code value for each identified potential bit pattern; and

determining whether any of the calculate error detection code values matches the received error detection code.

21. (original) The method of claim 14 wherein the error detection code value is a cyclic redundancy code value.

22. (currently amended) A method in a radio frequency identification (RFID) reader for interrogating a population of tags using binary tree traversal protocol, comprising the steps of:

storing data related to the tag population, wherein the tag population data includes node weighting information for ~~associated with~~ each populated node in a binary tree;

during binary tree traversal, determining a traversal path based on the tag population data.

23. (canceled)

24. (currently amended) The method of claim 22 [[23]] wherein the node weighting information includes:

a first stored counter value associated with a first logical bit value; and

a second stored counter value associated with a second logical bit value;

wherein step (1) comprises storing the first stored counter value and the second stored counter value for each populated node.

25. (currently amended) The method of claim 22 further comprising:

obtaining at least some of the tag population data from a device external to the reader.

26. (original) The method of claim 25 wherein the at least some of the tag population data is obtained from a second reader.

27. (original) The method of claim 26 wherein the at least some of the tag population data is obtained from a database.